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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,241	12/30/1999	TAKAHIRO KIMOTO	P/1909-122	7511

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OSTROLENK FABER GERB & SOFFEN LLP
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403

EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/476,241

Applicant(s)
Takahiro Kimoto

Examiner
Shawn An

Art Unit
2613



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5 and 12 is/are allowed.
- 6) ☒ Claim(s) 6-11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

2. The disclosure is objected to because of the following informalities: On page 3, line 7, '101' should be changed to '116'.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art in view of Horiike et al (6,044,115).

Regarding claims 1 and 5, Applicant's admitted prior art (Fig. 1) discloses a moving picture encoding apparatus, comprising:

map generating means (102) for generating a refresh map signal representing priority of refresh for each block;

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adaptive refresh signal generating means (103) for referring to refresh priority by the map signal and an allowed number of blocks (121) for refresh processing in a frame to be encoded, and generating a refresh signal for the block; and

moving picture encoding means (101) for generating the block information of an error (107) between frames and a quantity of motion generated during block encoding operation for conducting an intra-frame encoding operation for a block specified by the refresh signal and executing an intra-frame encoding operation (109) or an inter-frame encoding operation for a block not specified by the refresh signal (Applicant: page 3, lines 3-19).

Applicant's admitted prior art fails to disclose block significance determining means for determining block significance for each block as an encoding unit of the input image signals.

However, Horiike et al teaches an encoding apparatus comprising the conventional block significance determining means (Fig. 2, 11) for determining block significance for each block as an encoding unit of the input image signals.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing Applicant's admitted prior art to incorporate the block significance determining means as taught by Horiike et al for determining block significance for each block as an encoding unit of the input image signals and send the block information to the block significance determining means in order to improve the overall quality of the video images.

Regarding claims 2-4, Horiike et al teaches block significance determining means for calculating a block feature which is a quantity indicating a variance of blocks and a visual characteristic (luminance) of the block (col. 15, lines 53-56), and

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significance generating means for comparing block with one or more threshold value (prescribed value) and thereby generating block significance for each block (col. 15, lines 65-67; col. 16, lines 1-14). Furthermore, the Examiner takes official notice that band pass filter is conventionally well known in the art. Therefore, it would have been obvious to calculate a block feature by passing intra-block signals through the band pass filter to attenuate undesirable high frequencies.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art in view of Horiike et al (6,044,115) and Ohki (4,651,206).

Regarding claim 12, Applicant's admitted prior art (Fig. 1) discloses a moving picture encoding apparatus, comprising:

map generating means (102) for generating a refresh map signal representing priority of refresh for each block;

adaptive refresh signal generating means (103) for referring to refresh priority by the map signal and an allowed number of blocks (121) for refresh processing in a frame to be encoded, and generating a refresh signal for the block; and

moving picture encoding means (101) for generating the block information of an error (107) between frames and a quantity of motion generated during block encoding operation for conducting an intra-frame encoding operation for a block specified by the refresh signal and executing an intra-frame encoding operation (109) or an inter-frame encoding operation for a block not specified by the refresh signal (Applicant: page 3, lines 3-19).

Applicant's admitted prior art fails to disclose block significance determining means for determining block significance for each block as an encoding unit of the input

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image signals, and refresh history determining means for temporarily keeping therein the refresh map signal referring to history of the refresh map signal.

However, Horiike et al teaches an encoding apparatus comprising the conventional block significance determining means (Fig. 2, 11) for determining block significance for each block as an encoding unit of the input image signals.

Furthermore, Ohki teaches conventional refresh history determining means (Fig. 4, 21) for temporarily keeping therein the refresh map signal referring to history of the refresh map signal.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing Applicant's admitted prior art to incorporate the block significance determining means as taught by Horiike et al for determining block significance for each block as an encoding unit of the input image signals and send the block information to the block significance determining means and also incorporate refresh history determining means as taught by Ohki for temporarily keeping therein the refresh map signal referring to history of the refresh map signal in order to improve the overall quality of the video images.

Allowable Subject Matter

6. Claims (6-11) and 13 are objected to as being dependent upon a rejected base claims 1 and 12, respectively, but would be allowable:

if any one of claims 6-11 are rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; and

if claim 13 is rewritten in independent form including all of the limitations of the base claim 12 and any intervening claims.

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Dependent claims 6-11 recite the novel feature of means wherein the block significance determining means includes:

block feature calculating means for calculating for each block a quantity representing a feature of signal distribution of the block and a visual characteristic of the block;

first significance generating means for comparing the block feature with one or more threshold values and thereby generating first block significance for each block;

visual deterioration calculating means for calculating for each block, a quantity of visual deterioration representing a degree of visual picture deterioration when a forecast error signal is lost;

second significance generating means for comparing the quantity of visual deterioration with one or more threshold values and thereby generating second block significance for each block;

block significance totaling means for combining the first block significance with the second block significance and supplying resultant block significance to the map generating means.

Dependent claim 13 recites the novel feature of means wherein the refresh history determining means includes:

a map history memory for referring to the refresh map signal from the map generating means and the refresh signal from the adaptive refresh signal generating means, thereby updating history, beginning at a start of encoding processing, of a refresh map, and storing therein the refresh map;

a refresh signal history memory for storing therein history of the refresh signal;

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a map modifying section for referring to the map history stored in the map history memory and the refresh history stored in the refresh signal history memory and thereby modifying forced refresh priority indicated by the refresh map signal from the map generating means.

The art of record fails to anticipate or make obvious the novel feature as specified in these dependent claims. Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A) Shin (5,764,296), Resolution variable adaptive picture compression.
- B) Cho et al (6,463,100 B1), Adaptive quantization control method.
- C) Asai et al (6,018,366), Video coding and decoding system and method.

8. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday through Friday.

SHAWN B. AN
PATENT EXAMINER



SSA

May 2, 2003